

Gas Exchange



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Problem & Solution

- Gas is getting more and more expensive, but cars aren't keeping up
- Drivers are unaware of one key factor in improving gas mileage—themselves!
- Seek to improve efficiencies in driving, car, and routing through an incentive-based system
- Gas Exchange:
 - Plans efficient trips
 - Gives feedback on driving
 - Provides incentives to encourage efficient driving

Overview

- Jean-Luc needs to get from Redmond to Seattle during rush hour.
 - 520 bridge is dynamically tolled. What is the best route and time?
- Gianluca is a new driver and needs coaching on efficient driving because his Ferrari is a gas hog



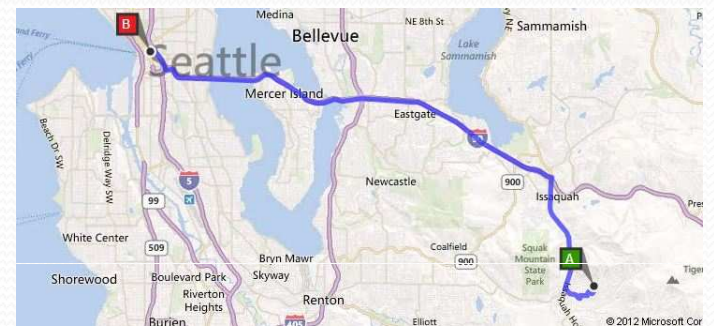
Overview (cont.)

- John Luke's car is always having issues and he'd like advance warnings before the thing dies on the road
- Juan Lucas is very eco-conscious and wants to minimize his driving footprint



Tasks

- 1. Planning an efficient route
*A twist on an everyday task,
which has room for
improvement*



- 2. Receiving feedback on driving



Nobody here is a perfect driver, some more so than others

Tasks (cont.)

- 3. Viewing car status



- *Finding out what's wrong with your car can be tedious.*
- *This would illustrate how Gas Exchange makes it brain dead to act on issues.*

- 4. Redeeming points for rewards

- *Everybody likes to save money.*
- *Illustrates the immediate benefit to the driver.*





Design - Initial

- Initially just in-car systems
- Broadened scope to include phone and gas kiosks for a better end-to-end story
- Contextual Inquiry:
 - People wanted to save on gas & money, but didn't have an easy, ubiquitous way to do so
 - Ignore car status until something bad happens
 - No idea about driving efficiency

Design Evolution - Testing

- 3 participants:
 - #1: Male, 30s, hospital administrator
 - #2: Female, 20s, scientist
 - #3: Female, 20s, marketing
- Tasks:
 - Mobile phone
 - Plan trip
 - In-car
 - Get driving feedback
 - Checking car status
 - Gas station kiosk
 - Redeeming points for a discount



Design Evolution - Changes

EcoPoints on HUD





Prototypes

- Video: ([link](#))
- Interactive: ([link](#))



Design Notes

- Assumptions
 - Systems are connected all the time
 - Gas Exchange is adopted by car makers, gas stations, phone platforms, insurance companies...
- Open Issues
 - Who funds it?
 - Government, insurance companies, car makers, gas companies, etc.
 - Other incentives?
 - Cheaper insurance, car discounts, social networking “achievements”

Design Notes (cont.)

- Value Sensitive Design
 - Many stakeholders (direct and indirect)
 - Direct: users
 - Indirect: other drivers, mechanics, car companies
 - Value tensions
 - Safety vs. fuel efficiency
 - Time vs. money savings





Lessons Learned

- Get a variety of testers and feedback
- Can't assume your design will always work!
- Paper prototypes may not always be readily intuitive
 - Our triangle control
- Brainstorming and collective design is really effective
 - So are multiple iterative design sessions
- **Lot of work, but lots of fun!**